tion for the current month was the greatest on record at: Portland, Me., 9.57; Indianapolis, 8.17; Block Island, 7.76; Rapid City, 2.58; Pueblo, 1.41. It was not the least on record at any regular station of the Weather Bureau.

HAIL.

The following are the dates on which hail fell in the respective States:

Alabama, 11. California, 6, 22. Colorado, 2, 3, 7, 9, 17, 21, 22, 24. Connecticut, 19. Georgia, 4. Idaho, 22, 23. Illinois, 2, 5, 14, 16, 18, 19, 26, 28. Kansas, 4, 8, 24. Kentucky, 17, 18, 24. Maryland, 20. Massachusetts, 9, 19. Michigan, 12. Mississippi, 12. Missouri, 4, 5, 16, 17, 18, 20, 27. Montana, 22. New Jersey, 3, 17, 19. New Mexico, 17, 23. New York, 17, 19. North Carolina, 11, 12, 19. North Dakota, 1, 12, 14, 15, 18. Ohio, 5. Pennsylvania, 17. Rhode Island, 17. South Dakota, 16. Tennessee, 19. Utah, 1, 8, 9, 11, 22 to 25. Virginia, 3, 18. Washington, 12, 15. West Virginia, 19. Wyoming, 25.

SLEET.

The following are the dates on which sleet fell in the respective States:

California, 22. Colorado, 9, 18, 26. Michigan, 18, 19, 21. Minnesota, 18. Missouri, 28. Montana, 8, 15, 25, 26. New Hampshire, 24.

WIND.

The *prevailing winds* for September, 1896, viz, those that were recorded most frequently, are shown in Table I for the regular Weather Bureau stations.

The *resultant winds*, as deduced from the personal observations made at 8 a. m. and 8 p. m., are given in Table IX. These latter resultants are also shown graphically on Chart IV, where the small figure attached to each arrow shows the number of hours that this resultant prevailed, on the assumption that each of the morning and evening observations represents one hour's duration of a uniform wind of average velocity. These figures indicate the relative extent to which winds from different directions counterbalanced each other.

HIGH WINDS.

Maximum wind velocities of 50 miles or more per hour were reported during this month at regular stations of the Weather Bureau as follows (maximum velocities are averages for five minutes; extreme velocities are gusts of shorter duration, and are not given in this table):

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
		Miles				*Miles*	
Block Island, R. I	9	75	ne.	Hatteras, N. C.	23	51	n.
Do	10	60	ne.	Jacksonville, Fla.	29	70	se.
Do	13	51	ne.	Kittyhawk, N. C.	23	58	ne.
Buffalo, N. Y	6	50	sw.	Do	30	55	sw.
Do	19	57	w.	Lexington, Ky.	30	56	sw.
Do	30	52	sw.	Nantucket, Mass	9	50	e.
Charleston, S. C	29	62	s.	Do	10	55	s.
Cleveland, Ohio	19	54	w.	New York, N. Y.	30	56	se.
Fort Canby, Wash.	30	52	s.	Savannah, Ga.	29	70	se.
Harrisburg, Pa.	30	72	s.	Washington, D. C.	29	66	se.

SUNSHINE AND CLOUDINESS.

The quantity of sunshine, and therefore of heat, received by the atmosphere as a whole is very nearly constant from year to year, but the proportion received by the surface of the earth depends upon the absorption by the atmosphere, and varies largely with the distribution of cloudiness. The sunshine is now recorded automatically at 19 regular stations of the Weather Bureau by its photographic, and at 24 by its thermal effects. At one station records are kept by both methods. The photographic record sheets show the apparent solar time, but the thermometric records show seventy-fifth meridian time; for convenience the results are all given in Table XI for each hour of local mean time.

Photographic and thermometric registers give the duration of that intensity of sunshine which suffices to make a record, and, therefore, they generally fail to record for a short time after sunrise and before sunset, because, even in a cloudless sky, the solar rays are then too feeble to affect the self-registers. If, therefore, such records are to be used for determining the amount of cloudiness, they must be supplemented by special observations of the sky near the sun at these times. The duration of clear sky thus specially determined constitutes the so-called twilight correction (more properly a low-sun correction), and when this has been applied, as has been done in preparing Table XI, there results a complete record of the clearness of the sky from sunrise to sunset in the neighborhood of the sun. The twilight correction is not needed when the self-registers are used for ascertaining the duration of a special intensity of sunshine, but is necessary when the duration of cloudiness is alone desired, as is usually the case.

The average cloudiness of the whole sky is determined by numerous personal observations at all stations during the daytime, and is given in the column "average cloudiness" in Table I; its complement, or percentage of clear sky, is given in the last column of Table XI.

Difference between instrumental and personal observations of sunshine.

Stations.	Apparatus.	Total possible duration for the whole month.	Personal estimated area of clear sky.	Instrumental record of sunshine.			
				Photographic.	Difference.	Thermometric.	Difference.
		Hrs.	%	%	%	%	%
Bismarck, N. Dak.	P.	376.9	56	57	+ 1	.....	.....
Helena, Mont.	P.	376.9	54	60	+ 6	.....	.....
Portland, Oreg.*	P.	376.1	65	63	− 2	.....	.....
	T.	376.1	65	.....	.....	63	− 2
Eastport, Me.	P.	375.8	31	42	+ 9	.....	.....
Minneapolis, Minn.	T.	375.8	.....	.....	.....	53	.....
Northfield, Vt.	P.	375.4	37	43	+ 6	.....	.....
Portland, Me.	T.	375.4	35	.....	.....	50	+15
Buffalo, N. Y.	T.	375.0	42	.....	.....	56	+14
Rochester, N. Y.	T.	375.0	42	.....	.....	49	+ 7
Boston, Mass.	T.	374.5	42	.....	.....	51	+ 9
Chicago, Ill.	T.	374.5	45	.....	.....	56	+11
Cleveland, Ohio	P.	374.5	39	.....	.....	.....	.....
Des Moines, Iowa	T.	374.5	48	.....	.....	51	+ 3
Dubuque, Iowa†	T.	374.5	39	.....	.....	.....	.....
Detroit, Mich.	T.	374.5	48	.....	.....	58	+10
Cheyenne, Wyo.	P.	374.0	45	61	+16	.....	.....
Eureka, Cal.	P.	374.0	44	48	+ 4	.....	.....
New York, N. Y.	T.	374.0	48	.....	.....	49	+ 1
Omaha, Nebr.†	P.	374.0	52	61	+ 9	.....	.....
Salt Lake City, Utah	P.	374.0	52	81	+29	.....	.....
Columbus, Ohio	T.	373.6	32	.....	.....	39	+ 7
Denver, Colo.	P.	373.6	55	63	+ 8	.....	.....
Philadelphia, Pa.	T.	373.6	47	.....	.....	64	+17
Baltimore, Md.	T.	373.4	50	.....	.....	54	+ 4
Cincinnati, Ohio	T.	373.4	49	.....	.....	68	+19
Kansas City, Mo.	P.	373.4	47	52	+ 5	.....	.....
St. Louis, Mo.	T.	373.4	46	.....	.....	60	+14
Washington, D. C.	P.	373.4	59	60	+ 1	.....	.....
Dodge City, Kans.	P.	373.0	58	66	+ 8	.....	.....
Louisville, Ky.	T.	373.0	48	.....	.....	58	+10
San Francisco, Cal.	T.	373.0	56	.....	.....	61	+ 5
Fresno, Cal.	T.	372.6	82	.....	.....	88	+ 6
Santa Fe, N. Mex.	P.	372.2	60	68	+ 8	.....	.....
Little Rock, Ark.	T.	372.0	61	.....	.....	73	+12
Atlanta, Ga†	T.	371.8	65	.....	.....	62	− 3
Wilmington, N. C.	T.	371.8	70	.....	.....	81	+11
Phœnix, Ariz.	P.	371.4	72	.....	.....	.....	.....
San Diego, Cal.	P.	371.4	79	75	− 4	.....	.....
Savannah, Ga.	P.	371.4	72	71	− 1	.....	.....
Vicksburg, Miss.	T.	371.4	77	.....	.....	79	+ 2
New Orleans, La.	T.	370.4	61	.....	.....	61	0
Galveston, Tex.	P.	370.4	63	71	+ 8	.....	.....

*Record by both methods.

†The personal estimates are for 30 days but the instrumental records are for 28 days only, for which the total possible was 347.8 hours.